

# Protein Denaturation

- Unfolded proteins, or proteins in which the secondary and tertiary structure has been disrupted to create random coil, are termed “Denatured”
- Denaturation can be caused by chemical means or energetic (heat)



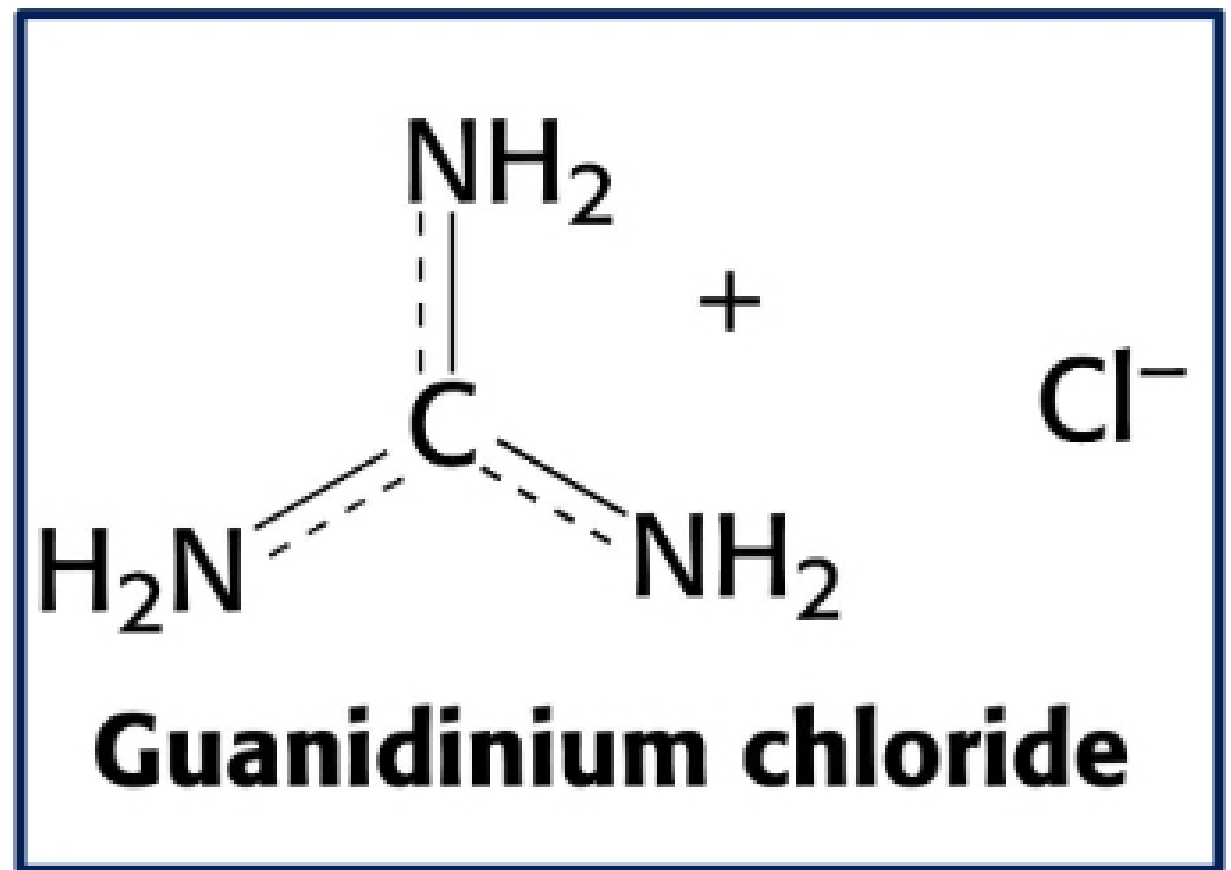
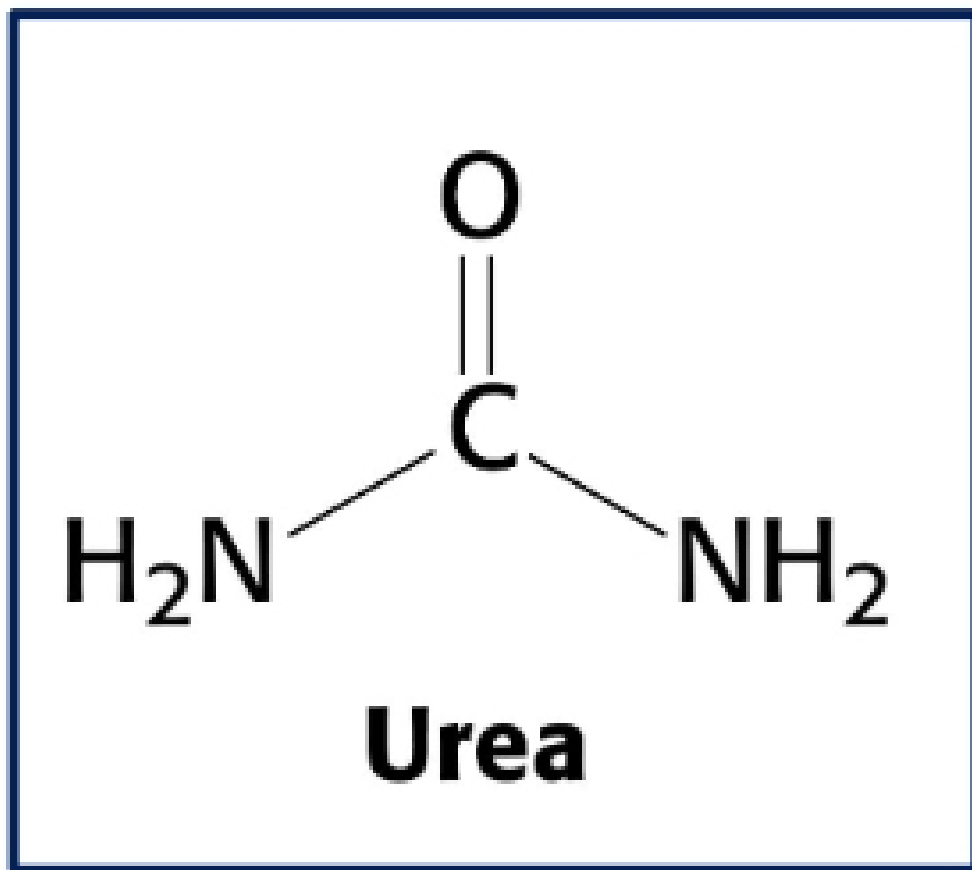
Albumin  
→  
Denaturation

denatured proteins  
liquid --> solid interior



# Chaotropes

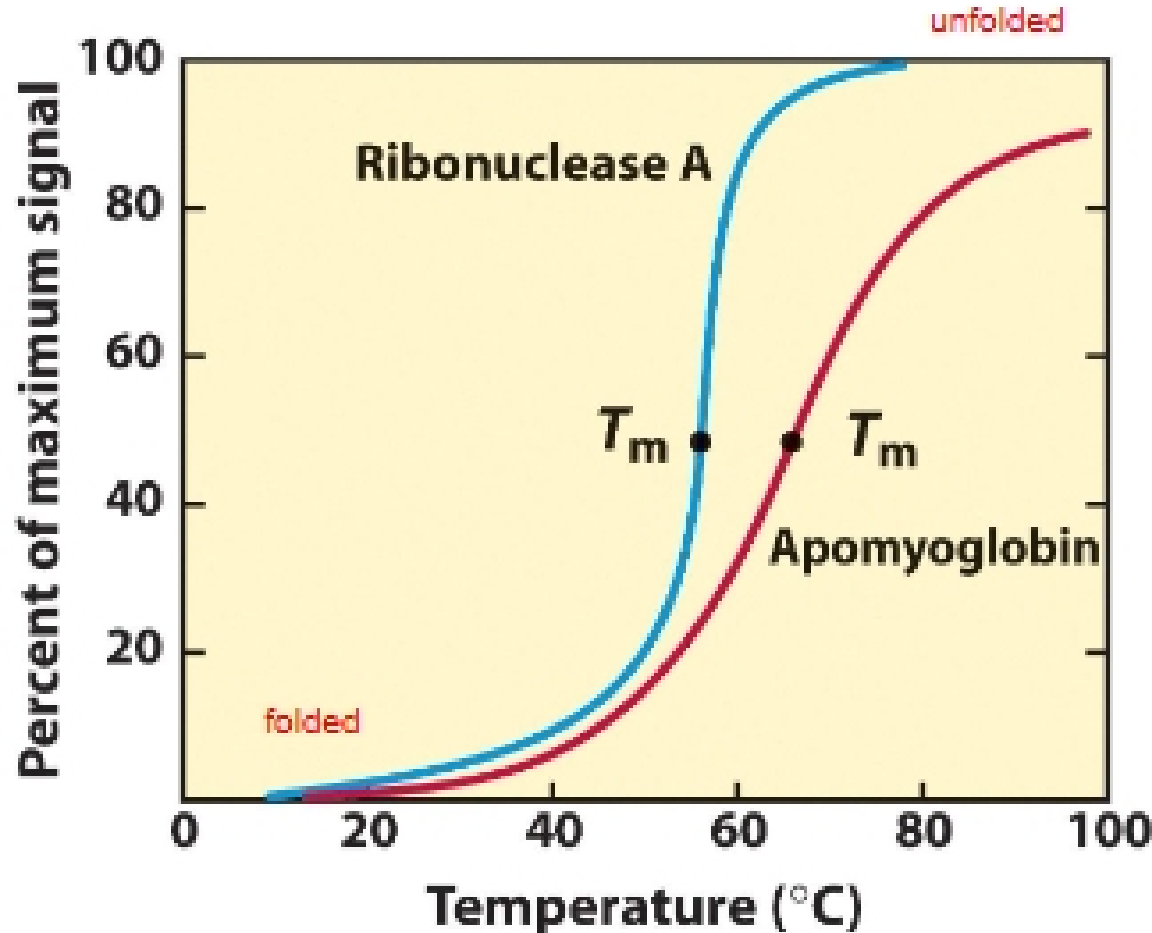
- Small molecules commonly used to denature proteins



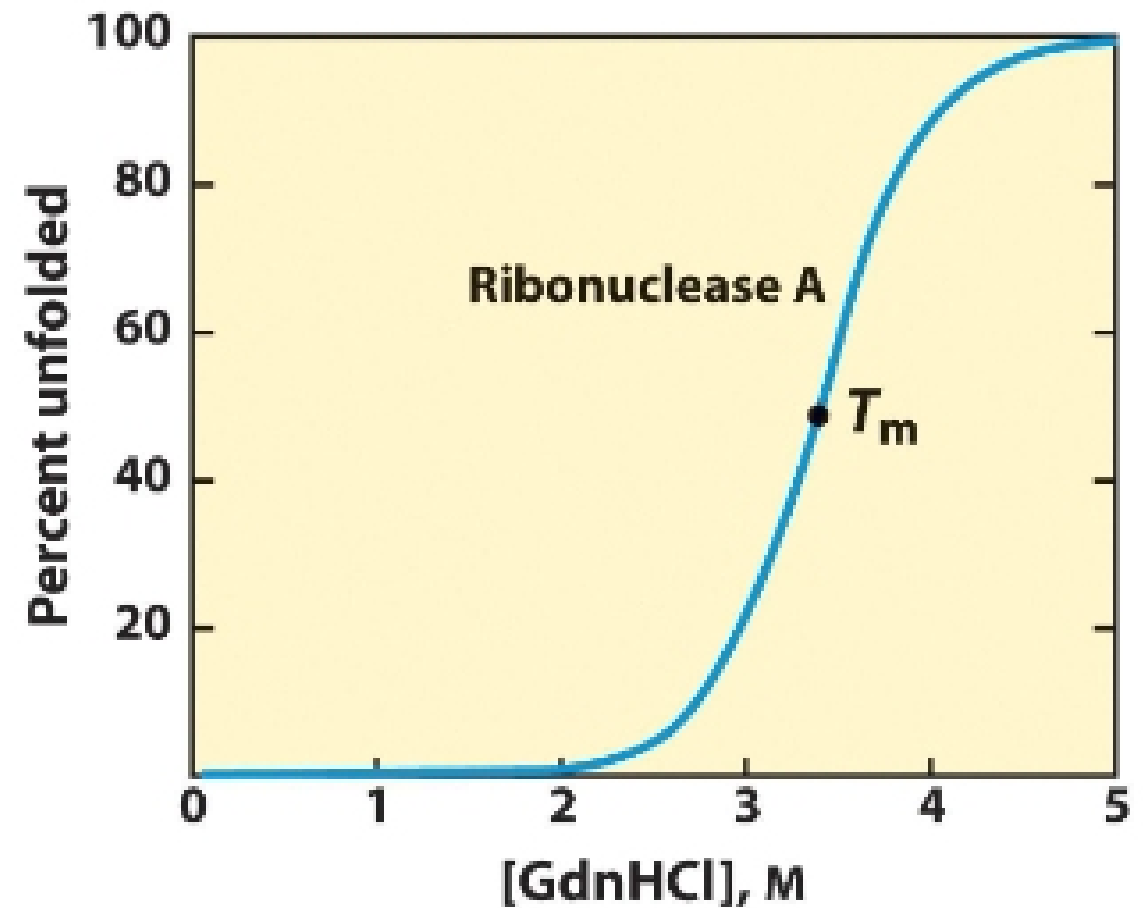
how - form H bonds which compete with the H bonds along the backbone, causing disruption

"detergent" used to denature the proteins

# Cooperative folding: Hydrophobic effect



Thermal denaturation  
Heat



Chemical denaturation  
with a chaotrope

- Protein unfolding monitored in this case by circular dichroism which measures secondary structure
- Abrupt two-state transition suggests cooperative folding